

[54] ETHERNET SYSTEM

[57]

ABSTRACT

Four (4) unshielded twisted pairs of wires connect a hub and a computer in an Ethernet system: one (1) pair for transmission only, another for reception only and the other two (2) for transmission and reception. The signals in the wires are in packets each having timing signals defining a preamble and thereafter having digital signals representing information as by individual ones of three (3) amplitude levels. The signals received at the computer are provided with an automatic gain control (AGC) and then with digital conversions at a particular rate. A control loop operative upon the digital conversions regulates the AGC gain at a particular value. An equalizer operative only during the occurrence of the digital signals in each packet selects an individual one of the three (3) amplitude levels closest to the amplitude of each digital conversion at the time assumed to constitute the conversion peak. The amplitudes of the timing signals in each preamble at the times assumed to constitute the peaks and zero crossings of such signals are multiplied. The rate of such digital conversions is adjusted in accordance with the polarity and magnitude of the multiplication product. The relative amplitudes of the successive equalizer values following each preamble are evaluated at the times assumed to be the peaks of the digital conversions. The rate of the digital conversions is adjusted in accordance with such evaluations, thereby further regulating the digital conversions at the particular rate. The equalizer thus operates on the information signals in each packet at the signal peaks.

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